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Titan Loss May Force Early Use Of Shuttle

Speculation centers on need for spy satellite.

By WILLIAM J. BROAD

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VANDENBERG AIR FORCE BASE, Calif., April 21 — The crisis in the nation's ability to launch key reconnaissance satellites has spurred speculation among aerospace experts that the Government might attempt an emergency mission of the space shuttle from a new launching facility here.

Air Force officials say the $2.8 billion complex is ready to launch a shuttle, even though minor construction remains to be finished. The spaceport's huge concrete and steel structures dominate a brushy, windswept mountainside high above the Pacific Ocean.

Under Construction Since '79

Quietly under construction since 1979, this Western shuttle site might be called into service because of the explosion here last Friday of a Titan rocket carrying a secret military payload, which was widely believed to be a KH-11 photo reconnaissance satellite. Experts say the spy satellite was to join an aging KH-11 currently in orbit, the nation's last in space.

"As long as that's operating, there's no compelling reason for a Vandenberg shuttle launch," said Jeffrey Richelson, a military expert at American University in Washington, D.C. "If it went out, however, that would certainly be an emergency situation."

Dr. Richelson said the payload destroyed last Friday was apparently the nation's last KH-11, another KH-11 having been lost in a fiery launching accident in August. The only other advanced spy satellite ready to be launched, he added, is the KH-12, which is believed to be too big for a rocket and must be boosted by the space shuttle.

The launching pads along the California coastline here are meant to boost shuttles and satellites into polar orbits, from which they can view the majority of the earth's surface. In contrast, the Kennedy Space Center in Florida puts objects into more limited equatorial orbits.

American spy satellites in polar orbits are crucial for keeping an eye on global "hot spots," for monitoring the Soviet military, for counting missiles, and in general for verifying compliance with arms control treaties.

The KH-11's are movable in orbit and have powerful cameras that can zoom in on almost any area of the earth. The KH-11 now in orbit was launched in late 1984, and is believed to be halfway through its life expectancy. It is also believed to the only American spy satellite in orbit.

Dr. William R. Graham, the Acting Administrator of the National Aeronautics and Space Administration, has said that the shuttle might be launched on an emergency basis if it was deemed necessary for purposes of national security. Since the Challenger exploded and its crew of seven astronauts was killed last Jan. 28, the nation's shuttle fleet has been grounded, pending the outcome of an inquiry into the cause of the disaster.

Aerospace experts outside the Government caution, however, that the untried Vandenberg site poses so many uncertainites that an emergency launching would truly be a last-ditch effort.

Work on Site Continuing

Air Force officials here refuse to discuss the nature of the Titan payload or whether they are anticipating an emergency launching of the shuttle. They will say, however, that work on the shuttle launching site is forging ahead despite the Titan explosion and the Challenger disaster.

"There's been no impact on shuttle preparations, none at all," Maj. Gen. Jack L. Watkins, commander of Vandenberg, said in an interview this weekend. "We're going to work on Monday morning like we have every day for the past seven years. We're moving ahead. There's no change at all."

A recent visitor to the huge shuttle complex here found Air Force officials excited about the work and eager to discuss the merits of the launching site.

"We have a clean shot all the way to Antarctica," Lieut. Sharon Walker, a Vandenberg spokesman, said as she gazed out over the Pacific.

The shuttle launch site is officially known as SLC-6 for Space Launch Complex Six; base workers affectionately call it "Slick-6." More than 4,000 workers are involved in final preparations on the dozens of buildings that make up the sprawling complex.

"The pad is complete," said Lieutenant Walker. "We're ready for stacking."

Columbia to Arrive in July

The next major step in preparations for shuttle launchings is to actually put a shuttle on the pad, according to Lieutenant Walker. "We want an orbiter so we can press on with launch site validation tests," she said. Such tests now are set to begin in July with the arrival here of the space shuttle Columbia.

But the Columbia itself is too heavy for a launch from Vandenberg. The Discovery is the preferred orbiter.

Ready to go in a cavernous building at the site are eight rocket segments that are waiting to be assembled into the shuttle's twin solid-fueled booster rockets. Unlike the ones currently used in the shuttle program, these segments have casings made of lightweight synthetic materials instead of steel.

Lightness is crucial because liftoffs from Vandenberg into north-south orbits get none of the added boost that east-west launchings do. At the Kennedy Space Center, this extra boost from the earth's rotation means that a rocket is already traveling at about 900 miles per hour at the moment of liftoff.

According to Air Force officials, an added advantage of the new casings is that they have been designed with a special "capture feature" along their inner seams to prevent the kind of leakage that is believed to have touched off the Challenger explosion.

Officials add that no instructions have come from the Presidential commission investigating the Challenger disaster or from NASA to abandon plans for the lightweight boosters.

'These Things Are Ready to Fly'

"Until somebody tells us differently, these things are ready to fly," said Lieut. Mike Smith, the lead mechanical engineer at the booster assembly facility here. He added that, with two days' notice, "we could be going to the pad" to stack the segments for a shuttle flight. Still, it would take weeks of preparations before a shuttle could be launched.

In contrast to the "can-do" mood evident here, space agency officials have said that the first flight of the shuttle would be extremely conservative, in warm weather from the Kennedy Space Center with test pilots at the controls.

And even before the Challenger explosion, a quick Vandenberg launching was frowned upon by NASA's Aerospace Safety Advisory Panel, which said tests of the lightweight booster casings indicated they might be too weak for the rigors of the job.

In the event that the lightweight boosters are abandoned, NASA and Air Force officials are discussing back-up plans in which steel boosters would be used for a Vandenberg launch, a situation that would also prompt a new fuel-saving flight path.

"They can lift extra payload with this maneuver," said John E. Pike, an aerospace expert with the Federation of American Scientists. Known as a "heads up" flight path, the maneuver keeps the shuttle and the astronauts' heads pointing up during the first part of the flight, in contrast to the usual way, in which they point down.

At the Johnson Space Center in Houston, astronauts have already been practicing various liftoffs from Vandenberg on complex flight simulators.

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Aerospace experts outside the Government say that an emergency launching here would generally be unlikely, given all the unknowns. "On the other hand," said Mr. Pike, "if for some reason the orbiting KH-11 goes sour, or the new shuttle schedule starts to slip, they might just go ahead and launch from Vandenberg."

Mr. Richelson of American University noted that the KH-12 has allures of its own for experts in military reconnaissance.

"It's bigger, and it will have more fuel and maneuvering capability than the KH-11, and it will be able to do night photography," he said. He added that the KH-12 is meant not only to be launched by the space shuttle but also refueled and serviced by it.

"The whole idea is that it can be refurbished," he said. The upshot is that the KH-12 will have a much longer lifetime in space than the current generation of spy satellites, he said.

Such longevity might go a long way toward avoiding the kind of crisis that currently confronts the United States, which reportedly is stuck with only one relatively short-lived spy satellite in orbit. Aerospace experts say that in the future it would be far easier to loft astronauts and fuel into space than having to regularly lift bulky reconnaissance satellites.